A High Strehl Visible Telescopic Test Bed for Planet Finding Coronagraphs

Mary Anne Peters (mpeters2 at email.arizona.edu), University of Arizona
Laird M. Close, University of Arizona
Grover A. Swartzlander, University of Arizona
Rukiah S. Abdul-Malik, University of Arizona
Matt Rademacher, University of Arizona

We have constructed a high-speed image stabilization system attached to an 8-inch refractive telescope at Steward Observatory. The high-speed tip/tilt mirror platform is controlled by a photon-counting camera that allows us to correct the wave front distortion at a rate exceeding 1 KHz. The system is projected to achieve strehl ratios over 96% at 850nm when the telescope aperture stopped down to less than the Freid parameter (approximately 50 mm). With this telescopic system, we plan to characterize a number of different coronagraphs, namely the optical vortex coronagraph (OVC). With the OVC attached, we should obtain images with contrast ratios up to 10,000:1 at 3lambda/D. We welcome other coronagraphic architectures for realistic telescopic characterizations as well.